Fig. 1

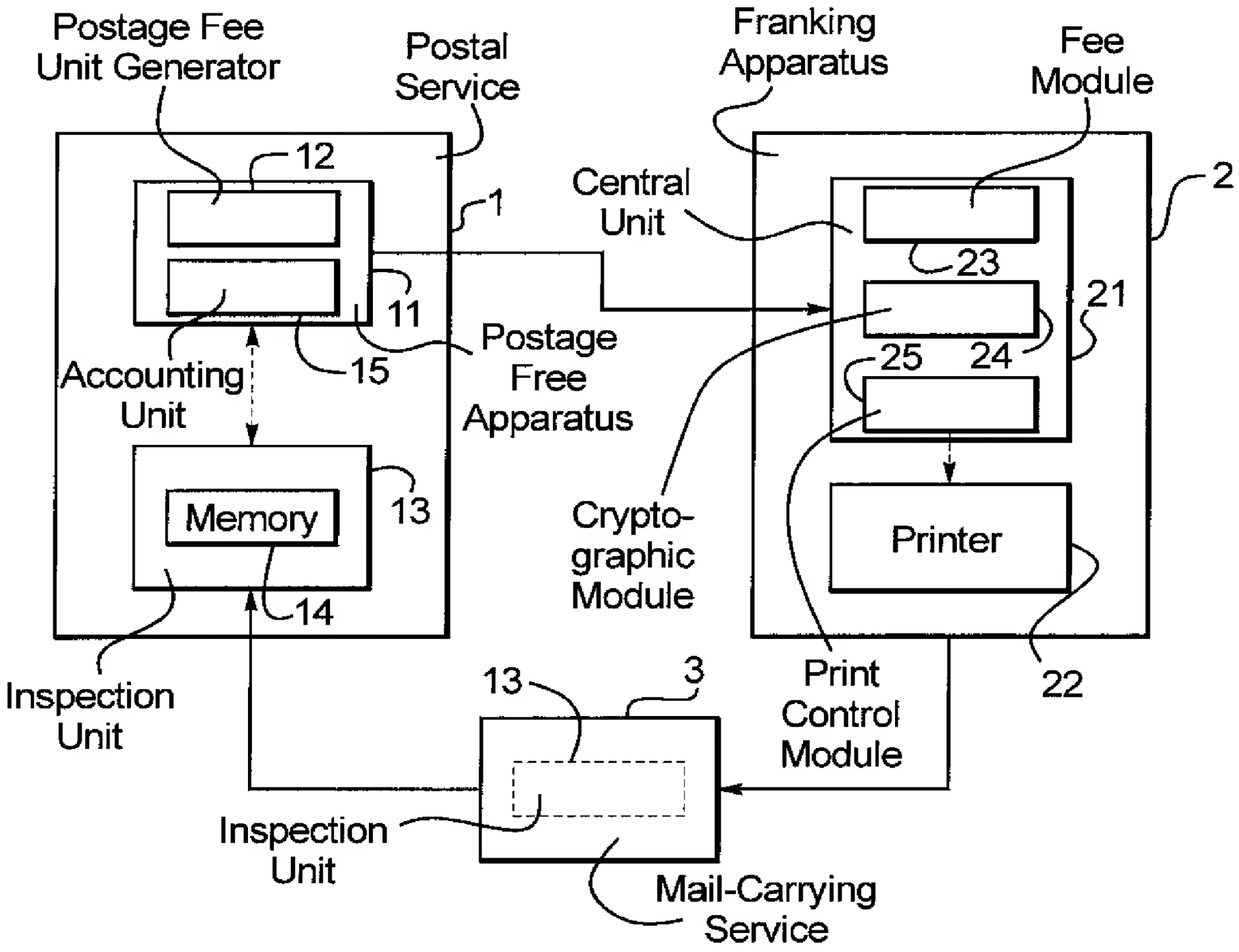
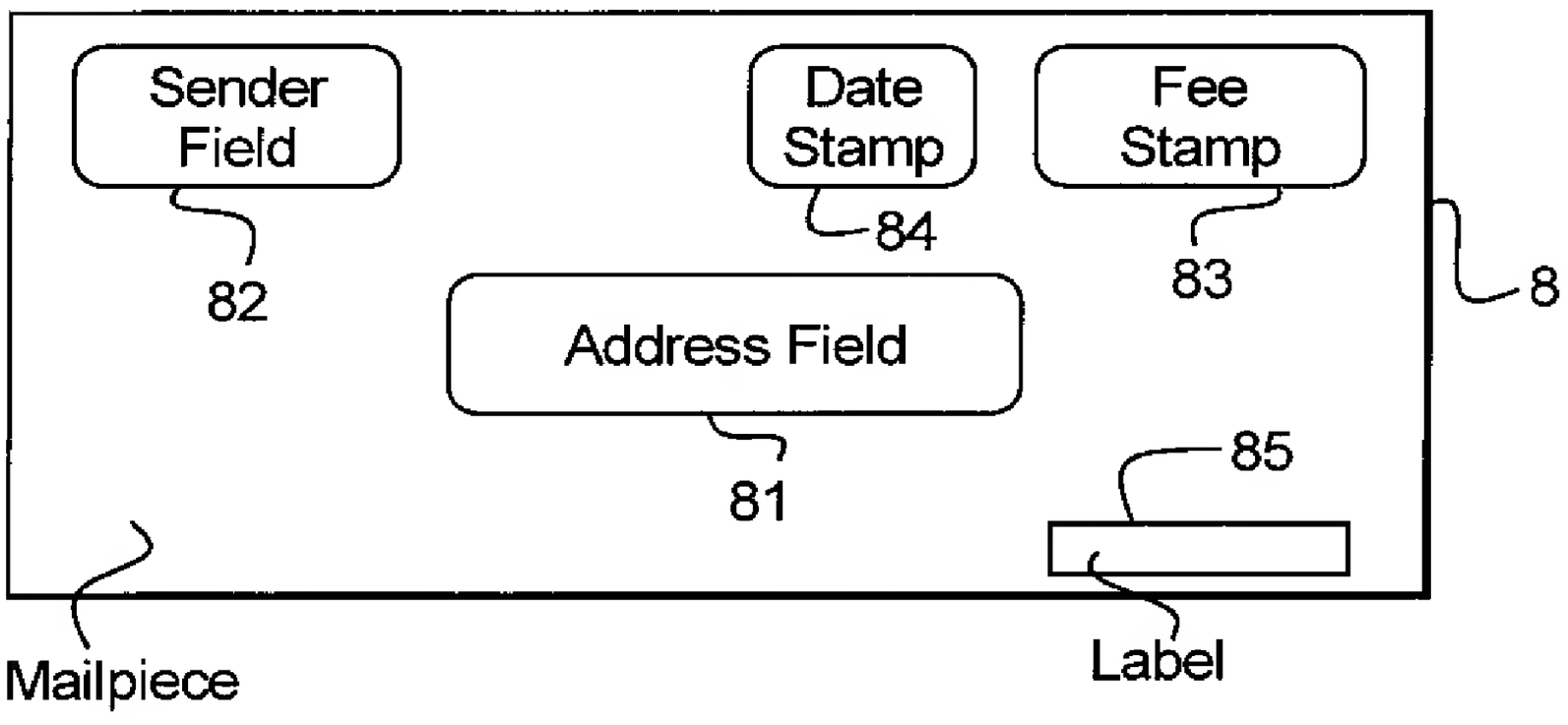

Postage Fee Unit Generator
Postal Service
Franking Apparatus
Fee Module
12
1
Central Unit
2
23
21
11
Postage Free Apparatus
25
24
15
Accounting Unit
Memory
13
Crypto-graphic Module
Printer
14
Inspection Unit
13
3
Print Control Module
22
Inspection Unit
Mail-Carrying Service

Fig. 2


Sender Field
Date Stamp
Fee Stamp
84
82
83
8
Address Field
81
85
Mailpiece
Label

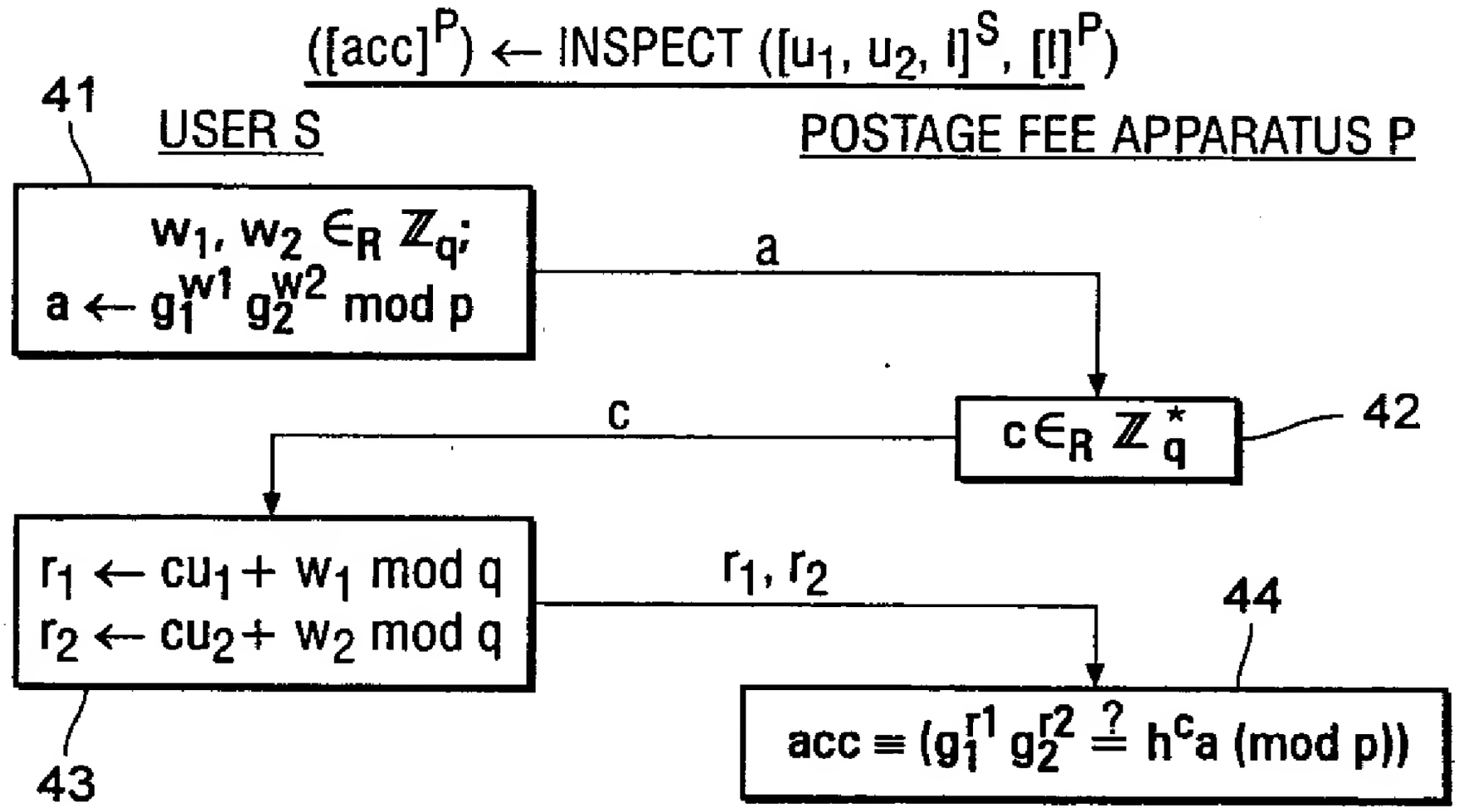


Fig. 3

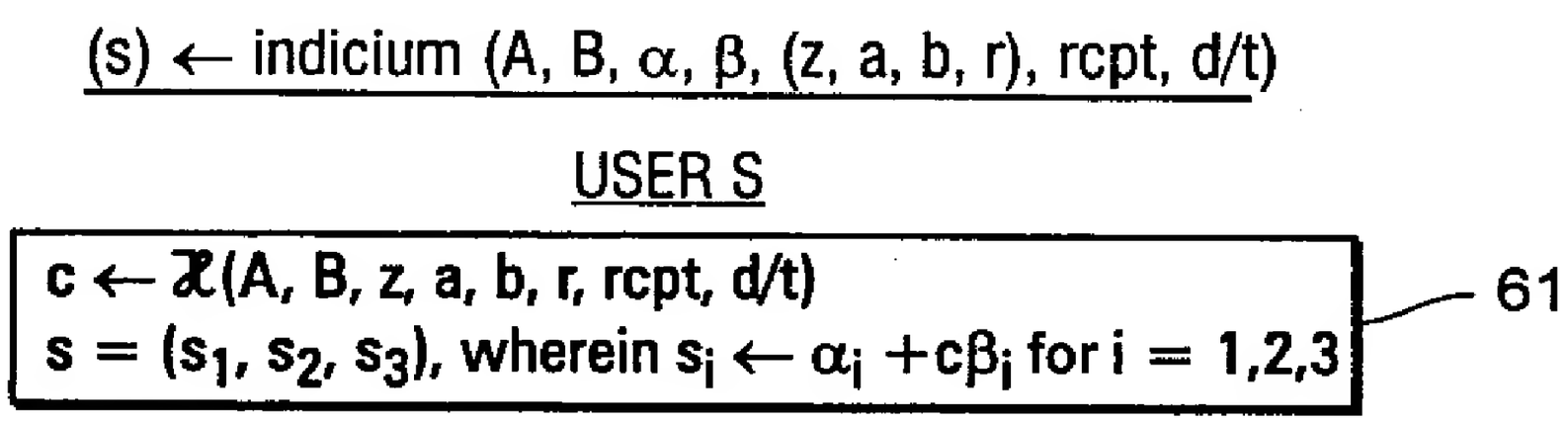


Fig. 5

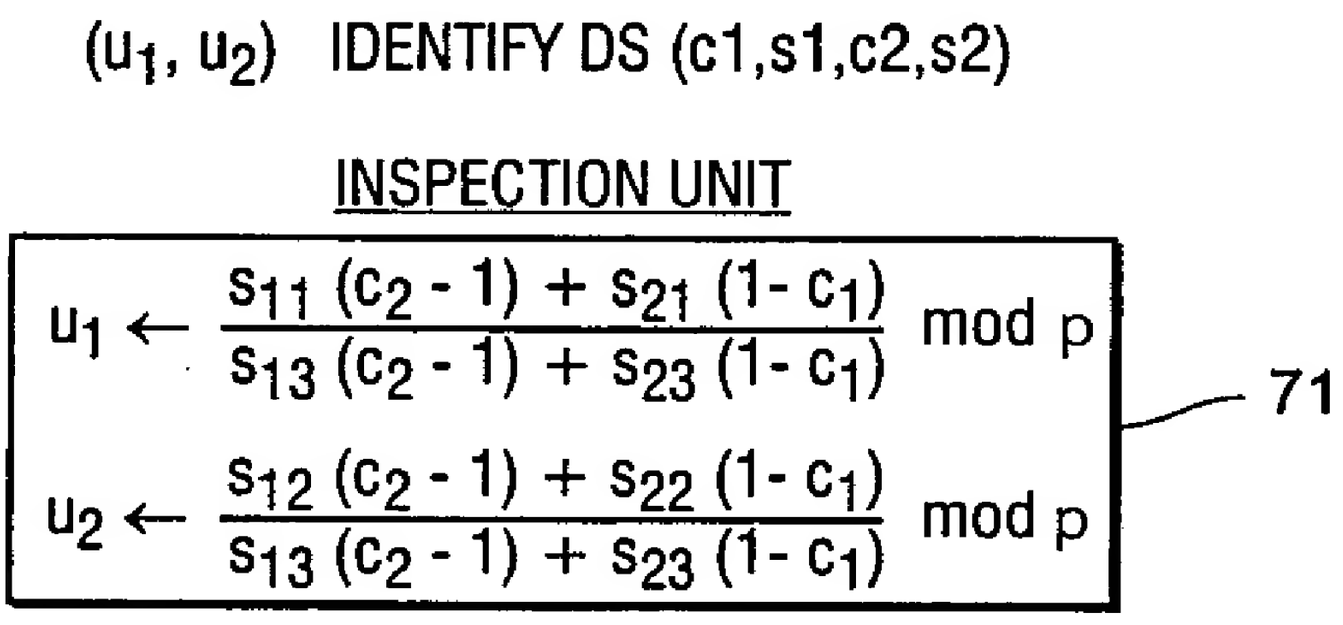


Fig. 6

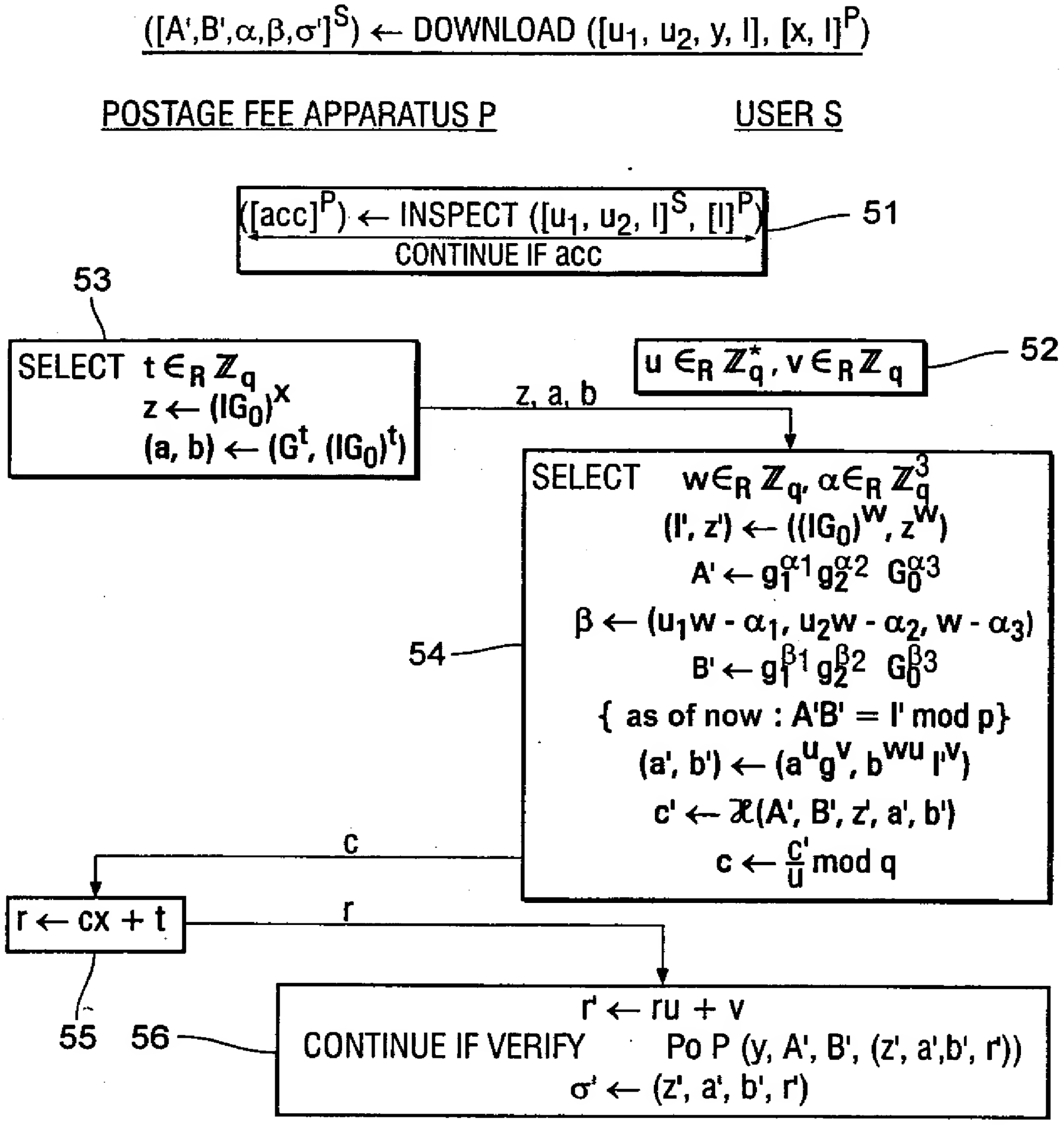
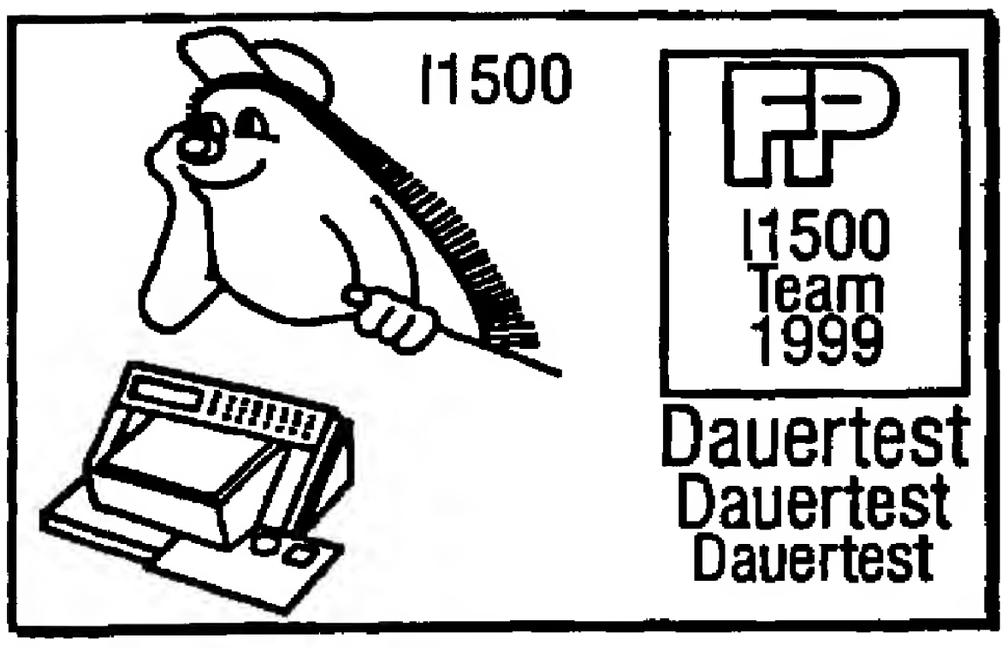

$([A',B',\alpha,\beta,\sigma']^S) \leftarrow$ DOWNLOAD $([u_1, u_2, y, I], [x, I]^P)$
POSTAGE FEE APPARATUS P
USER S
$([acc]^P) \leftarrow$ INSPECT $([u_1, u_2, I]^S, [I]^P)$
CONTINUE IF acc
51
53
SELECT $t \in_R \mathbb{Z}_q$
$z \leftarrow (IG_0)^x$
$(a, b) \leftarrow (G^t, (IG_0)^t)$
$u \in_R \mathbb{Z}_q^*, v \in_R \mathbb{Z}_q$
52
z, a, b
54
SELECT $w \in_R \mathbb{Z}_q, \alpha \in_R \mathbb{Z}_q^3$
$(I', z') \leftarrow ((IG_0)^w, z^w)$
$A' \leftarrow g_1^{\alpha 1} g_2^{\alpha 2} G_0^{\alpha 3}$
$\beta \leftarrow (u_1 w - \alpha_1, u_2 w - \alpha_2, w - \alpha_3)$
$B' \leftarrow g_1^{\beta 1} g_2^{\beta 2} G_0^{\beta 3}$
{ as of now : $A'B' = I' \bmod p$}
$(a', b') \leftarrow (a^u g^v, b^{wu} I'^v)$
$c' \leftarrow \mathcal{R}(A', B', z', a', b')$
$c \leftarrow \frac{c'}{u} \bmod q$
c
$r \leftarrow cx + t$
r
55
56
$r' \leftarrow ru + v$
CONTINUE IF VERIFY Po P (y, A', B', (z', a',b', r'))
$\sigma' \leftarrow (z', a', b', r')$

Fig. 4



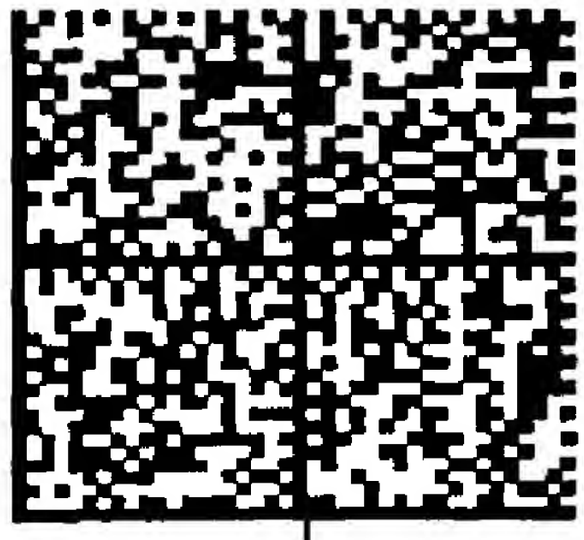


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Fig. 7

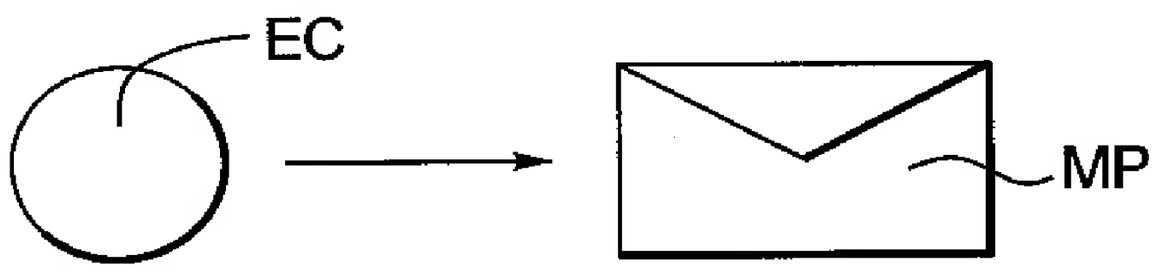

Fig. 8

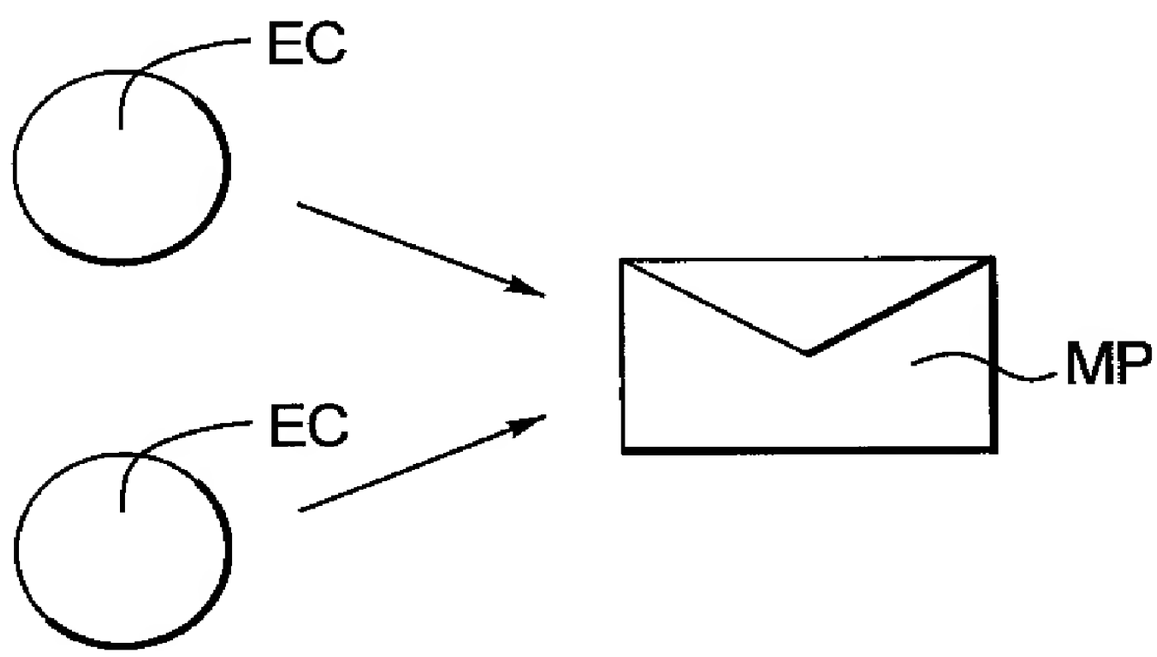

Fig. 9

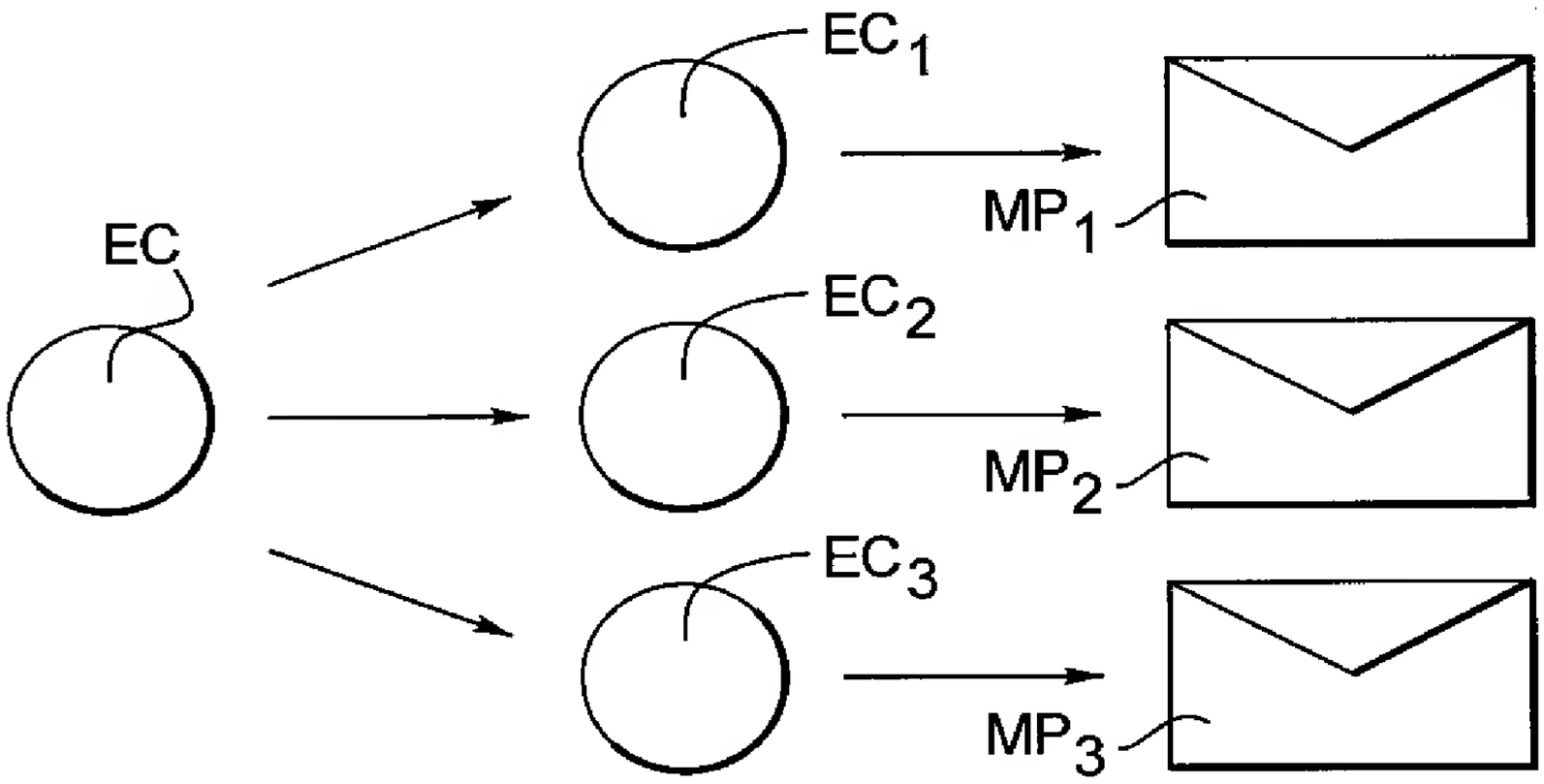

Fig. 10

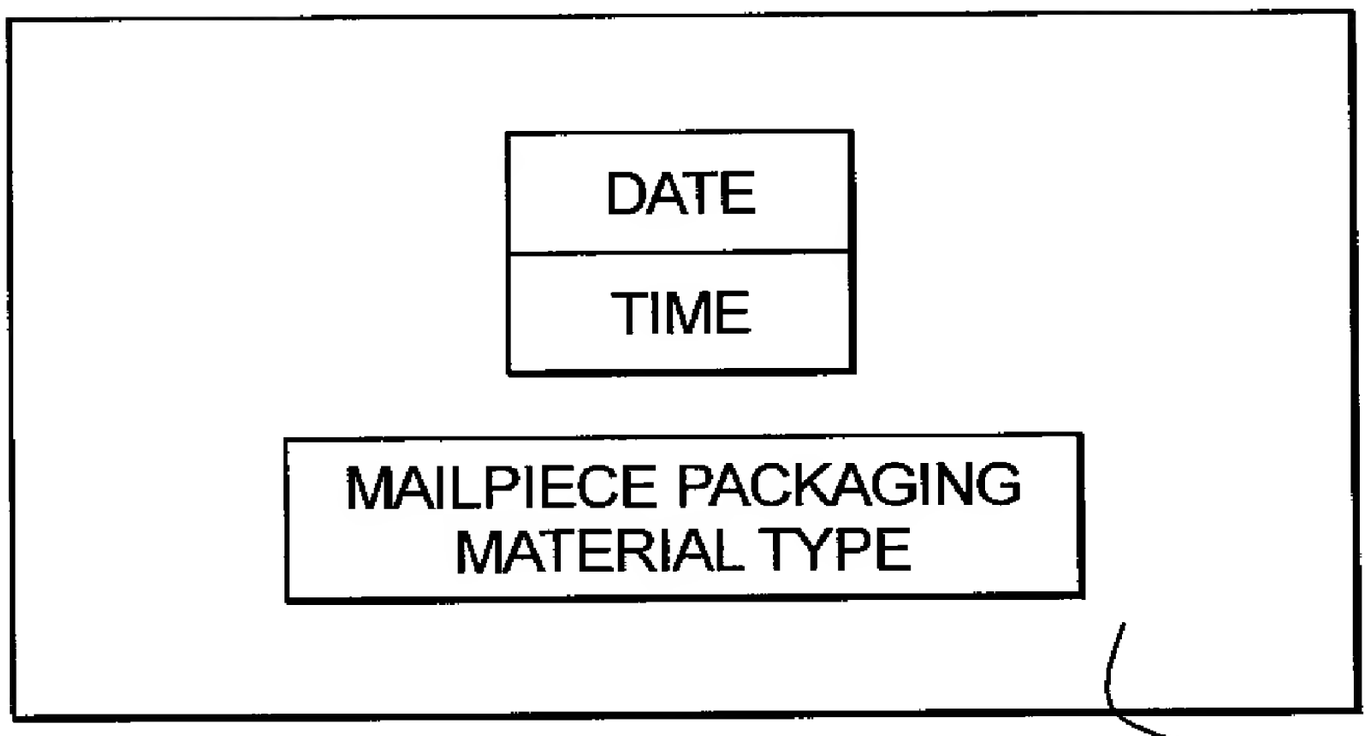
DATE
TIME
MAILPIECE PACKAGING MATERIAL TYPE
84A

Fig. 11

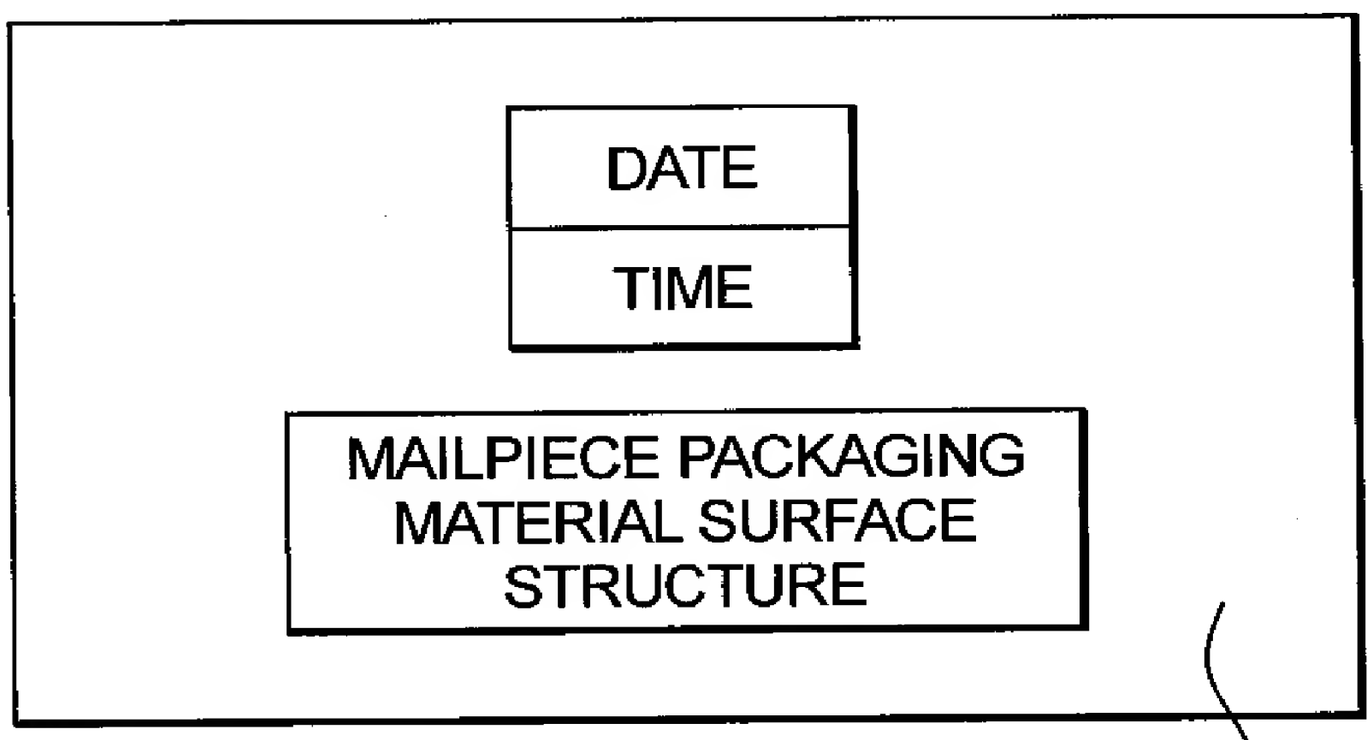
DATE
TIME
MAILPIECE PACKAGING MATERIAL SURFACE STRUCTURE
84B

Fig. 12